MAN ON FIRE PRESENTS

THE COMBUSTION CHRONICLES

EPISODE SIX
THE NOW-IST CAPRICORN

HOST: SHAWN NASON
CO-HOST: MICHAEL HARPER
GUEST: DR. DANIEL KRAFT

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EPISODE SIX The Now-ist Capricorn
WITH DR. DANIEL KRAFT

Who better to disrupt the healthcare system than a Stanford- and Harvard-trained physician-scientist, entrepreneur, inventor, and innovator with more than 25 years of experience in clinical practice, biomedical research, and healthcare transformation? That's Dr. Daniel Kraft, our guest on this week's episode. Kraft is the brain behind IntelliMedicine—think personalized prescriptions you 3D print at home—and says the future of healthcare is being built by astrophysicists, gamers, and maker folks, not by doctors and biotech researchers. Tune in to hear why he calls the COVID-19 pandemic our Apollo 13 moment and why he thinks we're in the midst of a practice pandemic. (Yikes!)

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in
Daniel Kraft, MD

THEMES & INSIGHTS

1. Don't dwell on the problem. Instead, use your creativity to solve the problem.

2. In medicine, doctors specialize in silos, but we need to cross disciplines to find innovative solutions. A revolution in healthcare (from reactive to proactive solutions) will require data sharing, collaboration, and integration from providers and patients.

3. A silver lining of the COVID-19 pandemic is the acceleration of technological innovation in healthcare, especially telemedicine.

4. Disruption comes when you bring new mindsets. It catalyzes not just new thinking but also new collaborations and solutions.

COMBUSTION QUOTES

"You know, innovation is doing something a little bit better … disruption is doing things so differently that the older ways go away…. Creativity comes in when you see this in healthcare, when you see a pain point or an unmet need."

"Healthcare has been very siloed by specialty and by body part, but a lot of the technologies cross specialties and clinical fields in general, and can be used in new ways to disrupt health and prevention…. So we live not just longer lives, but healthier ones…."

"Health infuses everything. If you don't have a relatively healthy mind and body, your productivity goes down … our human health is tied to our economic health, and that ties to almost everything else."

RESOURCES

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Shawn: Welcome to "The Combustion Chronicles" podcast, where bold leaders combined with big ideas to create game-changing disruption. I'm Shawn Nason, founder of Man on Fire, and your host for "The Combustion Chronicles." Throughout this series, we're bringing together the most unique and influential minds we could find to have honest conversations about not being okay with the status quo, blowing shit up, and working together to influence our shared future. We believe that when bold leaders ignite consumer-centric ideas with passion and grit, the result is an explosion that creates a better world for all of us. I'm here with my co-host Michael Harper, Chief of Radical Experiences at MOFI.

[00:00:43]
Shawn: So, on this episode, we're speaking with Dr. Daniel Kraft. Daniel is a Stanford and Harvard-trained physician-scientist, inventor, entrepreneur, and innovator. He has over 25 years of experience in clinical practice, biomedical research, and healthcare innovation. He is often called upon to speak to the future of health, medicine, and technology, and has given five TED and TEDMED talks. Daniel recently founded IntelliMedicine, focused on personalized data-driven precision medicine. He is also the inventor of the MarrowMiner, an FDA-approved device for the minimally invasive harvest of bone marrow.

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Daniel is also an avid pilot and has served in the Massachusetts and California Air National Guard as an officer and flight surgeon with F-15 and F-16 fighter squadrons, and he has conducted research on aerospace medicine that was published with NASA, with whom he was a finalist for astronaut selection. You know, welcome to the podcast, Daniel.

[00:01:46]
Dr. Kraft: Great to be here. Thanks.

[00:01:47]
Shawn: You know, I wish you would strive to do things a little better in life, so the bio could be a little...you know, trying to dig out all the great things you've done was a little hard there. From a pilot to an astronaut, but a whole career based on medicine. And you're described, Daniel, as a physician-scientist, inventor, entrepreneur, and innovator. Where does creativity and disruption fit into these different industries?

[00:02:14]
Dr. Kraft: Good question. I mean, I think you've probably see that image of, you know it, the difference between innovation and disruption. You know, innovation is doing something a little bit better, and I think disruption is doing things so differently that the older ways, kind of, go away. That's a rough alliteration. I think creativity comes in when you see this in healthcare, I think. You see a pain point or an unmet need. Why are we still using these fax machines, or why is grandma still taking 15 pills in a plastic pill cutter...pill box, and cutting her pills in half with a pill cutter.

[00:02:43]
And you see not just the problem, but the ability to solve that in new ways. And my favorite way to think about that is, you know, what are the technologies that are here now and coming, and when you mash them up in new ways, their conversions, how do you do it completely differently in a much, hopefully, better, faster, cheaper, and more democratized way? So there's tons of potential for creativity in healthcare. We have a lot of new tools and technologies that would have seem magical even just 10 years ago. But there's a lot of challenges between implementing them that we can use as individuals, as consumers, as patients, and folks like myself as clinicians you know, to be able to utilize some of these innovations and, and tools so that they're paid for, they're regulated, and they're not just a gizmo setting on the shelf.

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But tons of room for creativity, and I think even in the setting of this COVID pandemic, we're seeing creativity unleashed, and a lot of the innovations that are emerging in this sort of era of urgent need are going to help reshape healthcare in positive ways that if there's a silver lining, well, hopefully it'd save many more lives than the coronavirus uh, pandemic will take.

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Michael: So when you described yourself, Daniel, do you ever use the word "disruptor," or do you interchange with "innovator"? Do you...

[00:03:57]
Dr. Kraft: I don't know. I don't even know who wrote that line. I just say, you know, keep it short. I'm a Capricorn, and my favorite color is blue. I mean, everyone, hopefully, is a clinical innovator. Disruptor is, kind of, a strange word. I like to think...sometimes I'm, hopefully, a bit of a catalyst. Sometimes I like to look into the future. I don't even like the term futurist. I'm more of a now-ist, but I think anyone who likes to label themselves as disruptor, sometimes that's a bit over, overbearing. I think what's fun for me is to, sort of, look at challenges and problems, bring people together, technologies together, often from different worlds, into the future of health. And medicine is not just being built by, you know, doctors and biotech and, and, and biophysicists. It's coming from astrophysicists and patients and maker folks and designers and coders and gamers and 3D printing experts and drone drivers.

[00:04:40]
You know, so I think the disruption comes when you bring new mindsets. You expose problems to people who may not have seen them in depth, and and that catalyzes not just, not just new thinking but new collaborations, and then new solutions.

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Michael: And it really is, kind of, where words start to fail us, right? We're moving so fast that language can't catch up to us in terms of, of how we're able to talk about what we're doing,

and it sounds like you're going for a multidisciplinary approach as well. You're trying to combine lots of different areas.

[00:05:08]
Dr. Kraft: Well, the challenge with our healthcare system, or really our sick care model, is that it's been very siloed. I mean, most of our departments, if you go through a medical school or even a pharma company, it's mostly based on anatomy, you know. Yeah, and in some special people, you have some of those specialists on the right knee and some on the left knee, if their orthopedic surgeon.

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You know, so we're now in this era of, you know, genomics, not just the genome, the microbiome, the prodium, the exposome, the socium. You know, we're not…and diseases, we're learning, are at the molecular level, not just at just the anatomic. So one of the challenges in healthcare is, again, has been very siloed by specialty and by body part, but a lot of the technologies cross specialties and clinical fields in general, and can be used in new ways to "disrupt," you know, health and prevention, health spans. So we live not just longer lives, but healthier ones, quality, quality of life years. It comes to diagnostics, so that we're picking up diseases early, like at stage zero or stage one rather than the usual stage three or stage four.

[00:06:07]
And then for therapy where we can be thinking, you know, in a more continuous way, to be much more precise, personalized, proactive, and data-driven, and the diagnostics and therapies are gonna start connecting the dots between fields and organizations and, and the usual paper medical records, electronic ones that don't talk to each other so we can speed up learnings and um, bring better health to more people in better, smarter, less expensive ways.

[00:06:31]
Shawn: Yeah. You know, Daniel, you said a little bit ago, and I, gonna dig into this or maybe make a statement, and see if you agree or disagree with me on this one. But I feel like we've, kind of, called bullshit on the FDA and CMS during this time of COVID-19, right, that why the things take so long to get to the FDA approval processor. You know, why for, I don't even know, 10 plus years trying to get ICD-10 codes for telemedicine and telehealth so people would use it more. We just could never get that innovation pushed through, but now all of a sudden you're faced with this COVID-19, and, oh, my gosh, we're approving things in 72 hours. How does that make you feel, you know, as a clinician that had some amazing ideas, you know, you have the FDA-approved device? Like, are we, are we really gonna see change coming forth and a new norm coming out of COVID-19 around this space?

[00:07:31]
Dr. Kraft: Well, I think it's getting bad. I mean, there's definitely areas to speed up regulation, whether it's the FDA or how you align incentives that pay for things in new ways. And on the plus side, telemedicine, you know, which is going well beyond just talking to a doctor, nurse, or

pharmacist on your smartphone screen, has been somewhat held back, in many cases, because of misaligned incentives. You know, the doctors felt threatened. It was actually outlawed. Teladoc, an early player, was outlawed in Texas for a while. It wasn't well reimbursed until catalyzed by the COVID pandemic. So, it's human nature. Physicians are not gonna do a telemedicine call when they're not paid for it or paid a fraction of what it is to bring the patient into the office.

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And some of the HIPAA laws, the Health Information Portability and Accessibility Act, is a well-meaning law written in 1998, pretty much before the digital era that's actually held a lot of innovation back since we made it much harder to share healthcare information. It's important to keep privacy in mind, but I've seen patients die who wouldn't have, the patient died with their privacy intact. They probably would have rather lived with, you know, the facts of their EKG coming in without a signature in triplicate. So, I think there are definitely things that are being unleashed here in the urgency of the COVID pandemic.

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At the same time you can go too far, particularly some of the new clinical "diagnostic" or immunologic tests out there, are not really getting rigorously evaluated. So the specificity and the sensitivity of them may be so bad that they're pretty much useless, particularly when you're looking at pretty rare events, like 2% of the population who might be zero positive for immuno [inaudible] against COVID. So there's pluses and minuses. I think we're gonna learn quickly, and it has, of course, unleashed a lot of new platforms and innovation and cross-collaborations that, hopefully, will maintain themselves going forward.

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We do know that there are already lot of lobbying starting to happen to reverse some of these relaxations of telemedicine laws and how we even pay for virtual visits when we, kind of, "go back to normal," if that ever happens.

[00:09:28]
Shawn: Yeah. You know, what this is gonna do to the system going forth in the future is pretty uh, mind-blowing to me. You know, in a time when innovation's so needed in this space, and it's really of the essence, how, in your opinion, can we, that work in the industry on the outskirts for clinicians, how can we better equip physicians, innovators, researchers, scientists, to get their ideas out and into the marketplace?

[00:09:56]
Dr. Kraft: Oh, sometimes it's just seeing inspiring stories like my friend, Dr. Dave Albert, who we talked to yesterday, who is trained as a cardiologist, he invented the AliveCor EKG, that was initially built into the back of your smartphone. Now, it's something that's on your Apple watch or can be a standalone little device, and he took that little idea from a YouTube video that went viral probably eight years ago now, to an FDA-cleared device that's now been through all sorts

of clinical trials. It's something you can buy on Amazon, etc., now, completely can change how we manage atrial fibrillation or other heart conditions. And now it's playing a very important role in clinical trials for drugs potentially against COVID, you know. Hydrochloroquine, you've heard a lot about, which still has a dubious...a limited amount of evidence that it works. Thus, sometimes cause what's called long QT intervals. It can cause significant heart issues. They are now using that to monitor patients in many settings.

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So we can see inspiring stories that physicians and others who can come up with things that have come to market. You also can expose, you know, clinicians and healthcare folks from all sorts of worlds that there's a lot of innovation already here that's not actively utilized. There's a famous quote that the future is already here, just not evenly distributed. We've had forms of telehealth and home monitoring and diagnostics and virtualized care for, in many places, but often scattered and not often going to scale.

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And I think now where at the potential where, stimulated by COVID, we're gonna be doing much more virtualized care that might have been, before you even call your virtual doctor, you've had a virtualized asynchronous visit to the chatbot that asked you questions and does the basic triage. It means we'll start to use things as common as a connected blood pressure cuff or pulse oximeter to monitor patients who have COVID and other diseases and say, "Wow, your pulse oximetry has gone from the mid90s to the mid-80s. You really...this is the time when you really need to head to the emergency room." Or we can prognosticate how you're going to do.

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So we can start to use even low costs 23 and me like genetics to figure out who has a genetic background that makes them more prone to having a bad outcome. We're still learning who's likely to get sick and why. So a lot of these can be put together without reinventing anything. It's a matter of aligning incentives, aligning how the data can flow, and then not overwhelming the doctor or the nurse or the health system with the workflow that can integrate that data, whether it's from your connected blood pressure cuff or pulse oximeter, etc.

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So, lots of ways to, hopefully, inspire clinicians of the day to see something and, and find the solutions already out there. And then if it's not out there, to potentially invent it or build it and get it into a small pilot trial, and then adopt it, and to move to scale.

[00:12:26]
Shawn: Digging in just a little more there. So, you know, this COVID-19 pandemic has forced rapid innovation, and really in this technology space. What, if any, of this tech, what do you think is here to stay when things are back to the new norm?

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Dr. Kraft: I think, well, telemedicine has already expanded over a thousand fold, and I think what's gonna happen is you're gonna see these conversions of not just the telepresent visit, meaning I can see you on my Zoom as your doctor and I'm not inhibited by having to have a HIPAA-compliant Zoom platform, but I also could leverage the explosion of home diagnostic kits. There's one called TytoCare that you can buy in Best Buy, if you can walk into one, or online. That is, sort of, a home kit where you as the patient can, you know, put on the stethoscope, listen to your heart sounds, look in your eyes, ears and mouth, share that with the online doctor or send that as a file. So we'll start to have a, sort of, blend of virtualized visits or certain kind of labs that you can do at home.

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And maybe, you know, we'll soon have an explosion of home-based COVID tests, both for the acute...when you're acutely infected with the virus, as well as to see whether you have antibodies that have evolved that may make you protected. And that might eventually tie in to your smartphone, you know, immunologic passport, which may allow you to return to work or access certain types of events or locations. Some scary privacy and other elements involved in that element.

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But I would say telemedicine's not gonna go back to where it was as a small fraction of care. We're gonna also see, hopefully, and if well needed that are funding a public health and new ways of doing public health. The CDC was dramatically defunded under Trump, and many scientists from many elements of the government have been, sort of, neutered over the last few years, that has dramatically negative impacts on our ability, for example, to have developed the testing we needed early in the pandemic that would have much better helped contain the disease and not let it spread as fast. And now we're, sadly, in mitigation, and even three months later, we still don't have enough tests.

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So we're gonna hopefully have a much more robust way of rapidly developing diagnostics and giving them where they're needed at scale. I would even argue going forward, you know, think about a rural town or even a suburb, you know, often don't have enough professional EMTs and firefighters to staff your fire house. We don't have enough professional public health workers to do contract tracing in the future. What if we had the equivalent of a global public health core, kind of, like a volunteer service where certain folks get trained up just like folks get trained to do CPR and some of our basic EMTs or basic firefighters? And when the bell rings or the pager goes off, they go and respond to that local emergency.

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I think we're gonna need to, you know, upskill folks as community health workers, as community public health workers to, in the future, um, respond more rapidly to public health elements and be able to do the things that usually required an MPH or PhD in public health to

execute upon. So I think we're gonna think differently about systems, and we're now in a hyperconnected world. We need to be connecting the dots because any pandemic disease can be anywhere in the world within 24 hours.

[00:15:26]
Michael: It's our only world, right? That, maybe to folks in the know like yourself, that's always been a part of that world, and now the rest of us are just acutely aware of how that affects us now, right?

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Dr. Kraft: Sure. More aware how hyperconnected we are, how our economies are interdependent, how, how quickly, I run a conference called Exponential Medicine. Never have used the word "exponential" so often now to describe the spread of a disease. Like, "Oh, no big deal. It's only one case. Only two cases. Only four cases. Oh, it's only eight. Only 16, 32, 64." And 15 days, you're at 32,000 cases, and 30 days, if it doubles every day, you're in a billion, right? So that's what's so scary about pandemic spread, and arguably, COVID isn't even as infectious as things like SARS, or as lethal as things like some other diseases.

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So, we have a long way to go to better connect the dots, but I think in some ways you can think about COVID-19 as a practice pandemic. You know, it's only killing only, somewhat less than 1% of the folks who get it. Arguably, we're still arguing about what percentage that is, but it's not like Ebola where it's 50% mortality.

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Michael: Wow, a practice pandemic. **(Shawn: Wow)**

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Michael: That's been changing for me in terms of looking at it through the lens of we're ramping up for this now, right? And you look at that global connectedness of humanity, and it's, it's both, both humbling and makes you feel vulnerable as well as…I think to me there's a sense of hope of what could come from this. And I know in talking with you that one of the most fun parts in talking with you is you're one of those folks who speaks with such energy about the future of healthcare and future of medicine, and yet you had to have experience some speed bumps along the way or some naysayers. How does that tension work for you? We're talking about tension. How do you navigate the negative with the energy for the hope of the future?

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Dr. Kraft: You know, I mean, it's a challenge. I mean, you know, I'm on Twitter, and occasionally, I've posted something, and you get the trolls after you, or you see that happen to other folks who are trying to do good things. You're seeing the anti-vaxx movement explode, and put us back to work elements that are gonna, arguably, bring us a resurgence of the disease in many parts of the country that have already had a peak, or parts that haven't had a massive

rush of cases. So there's, sort of, like, the infodemic, not just the pandemic side. So we need to, sort of, remember that before you start hyping anything, whether it's hydroxychloroquine or Remdesivir, to look at the science, and be careful as we move forward.

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You know, this is not like, you know, Facebook, you know, move faster, break things. You still need to be somewhat careful, but at the same time being expeditious. I think we still need healthy debate. You need to be able to listen to smart voices on different sides of the equation, and it's a time that we need to respectfully disagree and then agree to move forward because it's too important. We have so much at stake in terms of lives, and mortality and morbidity, economies.

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More people are arguably gonna die, not from COVID, but of COVID [inaudible] mental health issues. We're already seeing an explosion of domestic abuse and murders in some cases. So there's lots of downstream things that we're just at the beginning of...and all the way to horrible civil unrest if things don't turn around in...if you don't have vaccine in some reasonable timeframe.

[00:18:45]
Michael: And there's so much to keep doing, right? So where do you get your motivation with all of that? I mean, you're certainly in the know and forward-thinking about tackling all these big hairy problems that we talk about in healthcare. What's the driver for you?

[00:19:02]
Dr. Kraft: I think we can take a lot of inspiration from past events. My favorite timely event, it was 50 years that the Apollo 13 mission was off to the moon to be the third landing and, as you know the story, had an oxygen tank blow up and was almost a complete disaster, and Gene Krantz, who is the head of running Mission Control, was told this is gonna be a disaster for NASA. And he said, "I don't think this is gonna be a disaster. I think this will be NASA's finest hour."

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And, in a sense, they all pulled together. They innovated. They, you know, reinvented oxygen supplies in the lunar capsule, and they got the crew back, and it was NASA's finest hour, and in some ways, all the cross-collaboration, the fact that, you know, Apple and Google Earth start working together, and collaborating is just one small example. You know, we're gonna have a lot of new collaborations, new paths and friendships formed that will hopefully...and the response, you know, from the frontline workers to folks helping deliver food, to 3D printing masks, I mean, this is, in a sense, hopefully, our time to rise and make this, sort of, humanity's finest hour. And again, hopefully, move us to a future where we don't have pandemics emerge like this.

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So that's what gives me some hope, how much innovation from folks like Lucien Engelen, who you'll be talking to, the idea of, you know, patients included, nurses included, that we're all in this spaceship-earth together, and we need to be collaborating. And also solving bigger, even bigger issues like climate change, which is possibly tied to this pandemic as well.

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Shawn: So many nuggets there that you're bringing forth you know, and you as well, Dr. Kraft, know Zena out of Canada. You know, she said something to us the other day, and I'd love to just have your perspective before we close up, that healthcare is now going to be in every industry. So, how buildings are designed, how you staff in your organizations. What is your thought about that? You know, even this, talking about COVID being, the small pandemic getting ready for the big one, right, do you see healthcare in every industry now, in retail, across the whole board?

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Dr. Kraft: I don't know about every industry, but health is wealth, and from the health of your workplace, to how we treat our workers, to how we think about disparities of education, to access to food, and food is medicine, I think it, health obviously crosses everything in some form. And now we're seeing a lot of the big players from Amazon and Google and Facebook and even, you know, Lyft and Uber, in healthcare directly. Yes, it impacts us all in, even how you think about the health of your workers, add a meditation room, or encourage uh, a nap room, something, you know, happening in some places. Or mindfulness training.

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So, I think health infuses everything, as if you don't have a relatively healthy mind and body, your productivity goes down. It impacts the economy, and, you know, just look at how devastated the United States level on the global economy has been in literally three months. So, obviously, our human health is tied to our economic health, and that ties to almost everything else.

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Michael: That's amazing. So, looking forward and thinking as big as, as you typically think, and maybe you can't, like, tell us everything about if you've got some big stuff you're working on now, but, so if a huge grant just fell out of the sky that was limitless, and you could put together any team you wanted, any resource you wanted, and you got to choose the topic of what you wanted to go do, what would that be? Like, when you're up thinking about things at night, what do you dream about the big next thing could be with your worker just healthcare in general even?

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Dr. Kraft: That's tough leading question. I would say a couple things. Like, again, health and medicine isn't any one...there's no silver bullet, whether treating cancer, where there's

thousands and thousands of subtypes, or preventing disease. So, part of how I think about and summarize the future of healthcare is that we need to move from our sick care model, you know, based on very intermittent small amounts of data usually when you go in for a checkup or end up in the emergency room, like, you know, your EKG and labs. That's intermittent data that leads to our reactive sick care model. We wait for the patient to show up with a heart attack or stroke or late stage cancer.

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And where we can...if we start to really connect all these dots that already really exist, let along where they'll be in the next five years with technologies accelerating genomics and wearable Internet of Things and AI and Blockchain, and all your favorite buzzwords. We can go from intermittent and reactive to much more continuous and proactive, where we're gonna be leveraging the digital exhaust from our bodies and our connected homes, to give us smart nudges for health and wellness, to doing early diagnostics. And then when you do have a disease, to have much more continuous feedback, precise therapy that's tuned to you.

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And that's gonna be particularly blended in with telehealth care and this sort of medical tricorders we'll have at home that can monitor our vitals often seamlessly from your WiFi or your AI-enabled cameras. And then when you do need a therapy, that that's gonna be much more tuned to you. So my new startup in telemedicine, we know we'll be 3D printing personalized medications so that it's based on your genomics and physiology, and those in combinations.

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And not, ideally, no one needs to take a medication or medications, but folks are gonna have cancer or high blood pressure or cardiovascular disease or diabetes or combinations of those. So, ideally, we're gonna really tune the therapeutics to match the individual, both for, you know, a longevity pill, with your special dose of aspirin and vitamin D and fish oil that matches you. Or, again, your three blood pressure medicines in one that might eventually get printed each day based on your numbers that were collected from your smartwatch.

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So I'm, kind of, briefing here, but I think if, you know, hopefully the future is one that's much smarter, much more personalized, much more seamless. It's integrated in with good design thinking. So, you know, if you're a 70-year old with Type 1 diabetes versus a 17-year old, you know, the Gen Xers and Gen Ys need a very different way of interacting with health information in their clinical team, like my Snapchat, where the baby boomer who wants, you know, a real, human-to-human real-time visit. So we need to design not one-size-fits-all solutions either.

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My other big hope is that all this becomes, sort of, uber connected, kind of...I'd like to always use the analogy. You know, 15 years ago, we're still driving with paper maps. Remember that?

Now you can imagine driving, if we still drive, to get through traffic, when we get traffic back. We drove with Google Maps and Waze that's all crowdsourced from other drivers around us, and we can look at the local map in L.A. or San Francisco or wherever you might be driving, not the map from London or Singapore.

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And so I think we need that opportunity how to be collecting a lot of this data as data donors, and building better healthcare map for each of us so that on our healthcare journeys, both for optimizing our health and wellness and health span, or learning how do you pick up a disease based on, or COVID, from signals from your Fitbit or Apple Watch, and then how to manage that in smarter ways. We can build that, sort of, Google Maps and Waze for each of us. And we can not only be donating data, but we get back information that serves, again, our journey and helps build a better real-time information platform for everybody.

[00:26:07]
Shawn: Yeah. There's a lot of combustioning happening here.

[00:26:09]
Shawn: Yeah. And so much more, but want us to wrap this up here, and something fun we, kind of, do, Daniel, at the end of these is we have this combustion questions that, you know, I'd love to say we have a huge algorithm machine behind us something, but it's Michael here with me, and he's come up with three questions that he would love to ask you, and some of it is gonna be fun, some may catch you off guard. But, Michael, I'm gonna turn it over to you to ask these combustion questions.

[00:26:40]
Michael: Absolutely. So, Daniel, here are your combustion questions. Number one, if you suddenly became a master at woodworking, what's the first thing that you would make?

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Dr. Kraft: Well, I love that. A master at woodworking.

[00:26:56]
Michael: Anything you wanted with the tools that you had.

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Dr. Kraft: I'd make a homebuilt airplane. I mean, that was made of wood and balsa and could fly. And I don't know. Some sort of exotic homebuilt airplane, which some of which are made out of wood actually, partly. That may be one. Or for my kids, some sort of clever, you know, interlocking puzzle that could keep them occupied and off-screen time.

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Michael: Both good. I would be glad to go in that airplane with you.

[00:27:20]
Shawn: Yes, that would be fantastic.

[00:27:22]
Michael: So, speaking of kids, what was your favorite cartoon or TV show when you were growing up?

[00:27:28]
Dr. Kraft: You mean aside from "The Brady Bunch," which [inaudible]? Let's see. "H.R. PufnStuf." That doesn't count.

[00:27:26]
Michael: I loved the "H.R. Pufnstuf." **(Dr. Kraft, Great Show)**

[00:27:37]
Dr. Kraft: It depends on what age. I think I still remember, you know, "Sesame Street" and "Mister Rogers." Those were classics. You can't move away from those. It's funny to see the new versions of those. I have a four and six-year old. They sometimes watch "Daniel Tiger" and things along those lines. What else did I like growing up as a kid? I remember "The Muppets." I loved "The Muppets," you know.

[00:27:55]
Michael: I loved "The Muppets."

[00:27:56]
Dr. Kraft: And when I was a kid, you can...you know, there's, like, three channels, right? Like TBS, maybe four. You know, you had to wait for Saturday at 7 o'clock to watch "The Muppets" and that 30 minutes **(Shawn - that's right)**

[00:28:04]
Dr. Kraft: No livestreaming or, you know, Google TV or Apple TV or YouTube TV where you can watch whatever you want. So you'd appreciate things [crosstalk 00:28:09].

[00:28:10]
Michael: [crosstalk 00:28:10] you were left out of the lunch conversation the next day or the next week...

[00:28:13]
Shawn: The next week.

[00:28:14]
Michael: ...because everyone's talking about it.

[00:28:15]
Dr. Kraft: Absolutely. And, hell, we didn't have...we had rotary phones, for God's sakes. I'm dating myself, but how did we get around without texting and mobile. I have no idea how we lived in that era.

[00:28:25]
Michael: It's crazy.

[00:28:26]
Shawn: Yeah, I was talking to my daughter the other day about having to page her, and she looked at me like I was an idiot. Yes.

[00:28:31]
Michael: Or a drug dealer.

[00:28:32]
Dr. Kraft: Or a drug dealer, yeah. **(Shawn and Michael laugh)**

[00:28:33]
Michael: The final combustion question, what do you think about ice cubes?

[00:28:39]
Dr. Kraft: Ice cubes are hot, [ba dum tss] ice cubes. Wow. I think I've seen some great cool ice cubes at uh, sometimes, like, trade shows with all the flashing lights [inaudible 00:32:05] you can break cool, exotic drinks. I think ice cubes are probably underrated, but, you know, we have technology now. I had this idea years ago. Now you can buy this, a smart electric, you know, mug that either can be hot or cold. So, you don't need the ice cube. So I think we need to make ice cubes out of date.

[00:29:03]
And speaking of disruptive innovations, you know, years ago, the big industry was ice. There was, you know, you'd have an ice man put an ice block in your ice box. That was what my great-grandparents probably had, and that's how you kept things cold. And that was a whole industry. And that industry went quickly got disrupted when electric refrigeration was invented. And so ice cube is a good example of something little quaint that we keep our drinks with cold, but it was an entire massive industry in the past, and we'll see other massive industries of today, i.e., gasoline, etc., and other things go bust like ice cubes, or ice-based refrigeration has.

[00:29:38]
Michael: Right. And I also hope that there's always nugget ice available no matter where the technology takes us.

[00:29:43]
Dr. Kraft: Yeah, and we have global warming, so we're gonna want more ice to stay cool, but, yeah, there's also [inaudible].

[00:29:46]
Shawn & Michael: There you go. There you go.

[00:29:47]
Dr. Kraft: A flavored ice? We can go all sorts of directions with ice.

[00:29:50]
Shawn: (laughs) Well, Daniel, thank you so much. Love just following you and your work, and thank you for being on here with us, and just best wishes to you and your family to stay safe and be well during this time, and hope to see you and be at Exponential Medicine this year, if we can at least be back in public and those types of events again. So, thanks so much, Daniel.

[00:30:13]
Dr. Kraft: Thanks. I'll just say folks who are looking for more fun, disruptive, or innovative examples of healthcare stuff, go to exponentialmedicine.com/videos, and you'll see tons of great content. You should stream that instead of, sort of, Netflix. There's lots of great talks there. You can even watch last year's entire season of Exponential Medicine. And then if you're looking for a digital health and, you know, future-related tools, I built a website called digital.health. Digital.health, and that's a website where you can find a lot of technologies that are not the future but are already here now, that can be used by each of us to help with our own health and medical journeys.

[00:30:46]
Michael: I'm already on it. Can't wait.

[00:30:47]
Shawn: Yup. That can't wait. Awesome. Thank you, sir, and we'll talk soon.

[00:30:51]
Dr. Kraft: All right. Be well. Thanks.

Shawn: Thank you so much for listening to this episode of "The Combustion Chronicles." None of this is possible without you the listener. If you'd like to keep the conversation going, look up Man on Fire on Facebook, YouTube, Instagram, Twitter, and at manonfire.co. Give us a shout. Let us know what you think. And please, subscribe, rate, and review if you like what we're doing and if you don't do it anyways. And remember, always stay safe and be well.